

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 47237+A	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IT 03/00748	International filing date (day/month/year) 18.11.2003	Priority date (day/month/year) 20.11.2002
International Patent Classification (IPC) or both national classification and IPC B65H19/29		
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- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 8 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14.06.2004	Date of completion of this report 19.04.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Haaken, W Telephone No. +31 70 340-4278 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/IT 03/00748**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-25 as published

Claims, Numbers

1-36 filed with telefax on 13.04.2005

Drawings, Sheets

1/11-11/11 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-36
	No: Claims	
Inventive step (IS)	Yes: Claims	1-36
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-36
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
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International application No. PCT/IT 03/00748

Reference is made to the following document (the reference signs applying to this document)

D1: WO 01/64563 A (BETTI GIULIO ; MORELLI ROBERTO (IT); BENVENUTI ANGELO (IT); PERINI FAB) 7 September 2001 (2001-09-07)

The document JP05-170362 (KAWANOE ZOKI KK) 9 July 1993 (1993-07-09) was not cited in the search report. It was however taken into consideration for the Preliminary Examination as well.

Subject matter of independent claims 1 and 20

Closest prior art

D1 discloses

a peripheral rewinding machine for producing logs (R) of wound web material (N), comprising:

- a winding cradle (7, 9, 11) to wind the web material (N) and form said logs, including a at least first winding element (7) around which said web material (N) is fed;
- a feeder (31, 33, 47, 49, 51, 25) to feed tubular winding cores (A) around which said logs are wound, towards said winding cradle (7, 9, 11);
- means to sever the web material upon termination of each winding log; at least a first glue dispenser (121) including a mechanical member (disclosed in D1, page 4, line 18-25) that touches the web material (N) at the end of winding of each log (R), to apply a first glue to a portion of said web material (N), in proximity to a severing line, along which the web material is severed upon termination of winding a log (R) to form a final free edge and an initial free edge, said first glue gluing the final free edge of the log (cf. preamble of claim 1);

Problem

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The mechanical member requires space in the web feeding area and has to be individually controlled and operated.

Solution

The mechanical element is integral with said feeder so that it is controlled and operated together with the feeder.

Inventive Step

The solution is not anticipated by any of the cited documents. Furthermore, the skilled person does not obtain any information pointing at the technical problem or even the solution. Therefore, the subject matter of claim 1 also involves an inventive step. The same applies to corresponding method claim 20.

Subject matter of independent claims 3 and 21

Closest prior art

D1 also discloses a

rewinding machine for producing logs (R) of wound web material (N), comprising:

- a winding cradle (7, 9, 11) to wind the web material (N) and form said logs (R), including at least a first winding element (7) around which said web material (N) is fed
- means (27) to sever the web material (N) upon termination of winding each log (R) including a rotating severing element (27), cooperating with said first winding element (7);
- at least a first glue dispenser (121) including a mechanical member (disclosed in D1, page 4, line 18-25) that touches the web material (N) at the end of winding each log (R) to apply a first glue to a portion of said web material, in proximity to a severing line, along which the web material (N) is severed upon termination of winding a log (R) to form a final free edge and an initial free edge, said first glue gluing the final free

edge of the log (cf. preamble of **claim 3**).

Problem

The mechanical member requires space in the web feeding area and has to be individually controlled and operated.

Solution

The mechanical member of the first glue dispenser is integral with said web material or makes part of said severing element.

Inventive Step

The solution is not anticipated by any of the cited documents. Furthermore, the skilled person does not obtain any information pointing at the technical problem or even the solution. Therefore, the subject matter of claim 3 also involves an inventive step. The same applies to corresponding method claim 21.

Subject matter of independent claims 12 and 29

Closest prior art

D1 discloses

a rewinding machine to produce logs (R) of web material (N) wound on a winding core (A), comprising:

- winding elements (7, 9, 11) to wind the web material (N) and form said logs (R));
- a severing element (27) to sever the web material (N) upon termination of winding each log (R), to form a final edge of the finished log and an initial edge of a subsequent log;
- a feeder (31, 33, 47, 49, 51, 25) to feed tubular winding cores (A) towards said winding elements (7, 9, 11)(cf. part of claim 12;
- at least a first glue dispenser (121) to apply a first glue

Problem

The mechanical member requires space in the web feeding area and has to be individually controlled and operated.

Solution

The at least a first glue dispenser (121) is provided to apply a first glue to the winding cores (instead of the web material) according to at least a longitudinal band, and said feeder and said severing element are disposed and controlled so that upon termination of each winding log, the web material is severed and said longitudinal band of glue applied to said core is brought into contact with said web material after it has been severed, so that at least part of said first glue is transferred to the web material in the vicinity of the final free edge of the finished log, to glue the final free edge of the log.

Inventive Step

The solution is not anticipated by any of the cited documents. Furthermore, the skilled person does not obtain any information pointing at the technical problem or even the solution. Therefore, the subject matter of claim 12 also involves an inventive step. The same applies to corresponding method claim 29.

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Amended CLAIMS

1. A peripheral rewinding machine for producing logs (L1, L2) of wound web material (N), comprising:

- a winding cradle (11) to wind the web material and form said logs, including a at least a first winding element (1) around which said web material (N) is fed;
- a feeder (101) to feed tubular winding cores (A1, A2, A3, A4; A5), around which said logs are wound, towards said winding cradle;
- means to sever the web material upon termination of winding each log (L1, L2);
- at least a first glue dispenser (105) including a mechanical member that touches the web material at the end of winding of each log (L1, L2), to apply a first glue (C2) to a portion of said web material, in proximity to a severing line, along which the web material is severed upon termination of winding a log to form a final free edge and an initial free edge, said first glue gluing the final free edge of the log;

characterized in that said mechanical element (105) is integral with said feeder (101).

2. Rewinding machine as claimed in claim 1, characterized in that said feeder comprises an oscillating or rotating seat (101A), with which said mechanical element (105) is integral.

3. A rewinding machine for producing logs (L1, L2) of wound web material (N), comprising:

- a winding cradle (11) to wind the web material and form said logs, including a at least a first winding element (1) around which said web material (N) is fed
- means to sever the web material upon termination of winding each log (L1, L2), including a rotating severing element (31), cooperating with said first winding element (1);
- at least a first glue dispenser (31; 31B) including a mechanical member that touches the web material at the end of winding of each log (L1, L2), to apply a first glue (C2) to a portion of said web material, in proximity to a severing line, along which the web material is severed

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upon termination of winding a log to form a final free edge and an initial free edge, said first glue gluing the final free edge of the log;

characterized in that said mechanical member of said first glue dispenser is integral with said severing element (31) or makes part of said severing element (31).

4. Rewinding machine as claimed in claim 3, characterized in that said severing element is controlled such that when said severing element (31) is in contact with said web material it has a peripheral speed differing in respect of said first winding element (1).

5. Rewinding machine as claimed in claim 3 or 4, characterized in that said severing element (31) is integral to an assembly of rods (31B) at the ends of which glue soaking pads (41) are integral.

6. Rewinding machine as claimed in one or more of the previous claims, characterized in that said mechanical element is a rotating element.

7. Rewinding machine as claimed in one or more of the previous claims, characterized in that said first glue dispenser applies said first glue to a portion of web material wound around said first winding element (1).

8. Rewinding machine as claimed in one or more of the previous claims, characterized in that said mechanical element has at least one pad (41) suitable to pick up said first glue and to touch said web material, to transfer to it at least part of the glue picked up.

9. Rewinding machine as claimed in one or more of the previous claims, characterized in that it comprises a second gluing unit (29) to apply a second glue to tubular winding cores.

10. Rewinding machine as claimed in one or more of the previous claims, characterized by a rolling surface (15) defining with said first winding element (1) a channel (19) to feed said winding cores (A1-A4); and wherein said winding cores are fed into said channel and made to roll inside it before the web material is severed.

11. Rewinding machine as claimed in one or more of the previous claims, characterized in that said first glue dispenser applies said first glue along longitudinal bands, continuous or broken, on said web material.

12. Rewinding machine to produce logs of web material wound on a winding core, comprising:

- winding elements to wind the web material and form said logs;
 - a severing element to sever the web material upon termination of winding each log, to form a final edge of the finished log and an initial edge of a subsequent log;
- 5 • a feeder to feed tubular winding cores towards said winding elements;
- at least a first glue dispenser to apply a first glue to said winding cores, according to at least a longitudinal band,
- said feeder and said severing element being disposed and controlled so that upon termination of winding each log, the web material is severed and
- 10 said longitudinal band of glue applied to said core is brought into contact with said web material after it has been severed, so that at least part of said first glue is transferred to the web material in the vicinity of the final free edge of the finished log, to glue the final free edge of the log.

13. Rewinding machine as claimed in claim 12, characterized in

15 that it is a peripheral rewinding machine comprising a winding cradle with at least a first winding element around which said web material is fed.

14. Rewinding machine as claimed in claim 12 or 13, characterized in that the core applies at least a part of said first glue to a portion of web material fed around said first winding element.

20 15. Rewinding machine as claimed in claims 12, 13 or 14, characterized in that it comprises a second glue dispenser to apply a second glue to said tubular winding cores, to fasten the initial free edge to said cores.

16. Rewinding machine as claimed in one or more of claims 13 to 15, characterized in that said means to sever the web material upon termination of winding each log comprise a rotating severing element, cooperating

25 with said first winding element.

17. Rewinding machine as claimed in one or more of claims 13 to 16, characterized in that when said severing element is in contact with said web material, it has a peripheral speed differing in respect of the peripheral

30 speed of said first winding element.

18. Rewinding machine as claimed in at least claim 13, characterized by a rolling surface defining with said first winding element a channel with an inlet for inserting said winding cores; and in that said winding cores

are fed into said channel and made to roll inside it, to bring said first glue in contact with the web material fed around said winding element.

19. Machine as claimed in claim 18, characterized in that said first winding element has a suction portion, upstream of the inlet of said channel, to hold the initial edge and the final edge on the surface of said winding element, said severing element being disposed to act upstream of said channel.

20. Method for producing logs of wound web material, comprising the phases of:

- winding a quantity of web material (N) to form a first log (L1) in a winding area;
- upon termination of winding said first log (L1), severing the web material to create a final edge (Lf) of the first log and an initial edge (Li) to form a second log;
- applying a first glue to a portion of the web material destined to remain wound on the first log, in proximity to the final free edge, which is glued to the first log upon termination of winding.

characterized in that said first glue is applied to the web material by means of a feeder of said tubular cores, during insertion of a core towards said winding area.

21. Method for producing logs of wound web material, comprising the phases of:

- winding a quantity of web material (N) to form a first log (L1) in a winding area;
- upon termination of winding said first log (L1), severing the web material to create a final edge (Lf) of the first log and an initial edge (Li) to form a second log;
- applying a first glue to a portion of the web material destined to remain wound on the first log, in proximity to the final free edge, which is glued to the first log upon termination of winding,

characterized in that said first glue is applied to the web material by means of a severing element that also severs the web material upon termination of winding each log.

22. Method as claimed in claim 21, characterized in that said logs

are wound around tubular winding cores (A1-A4).

23. Method as claimed in claim 20 or 22, characterized in that a second glue is applied to said tubular winding cores to fasten the initial free edge of the web material.

5 24. Method as claimed in one or more of claims 20 to 23, characterized in that said first glue is applied along a longitudinal line.

25. Method as claimed in one or more of claims 20 to 24, characterized in that said logs are wound with a peripheral winding system.

10 26. Method as claimed in one or more of claims 20 to 26, characterized in that said first glue is applied to the web material before severing of the web material.

27. Method as claimed in one or more of claims 20 to 27, characterized in that said first glue is a liquid or semi-liquid glue.

15 28. Method as claimed in one or more of claims 20 to 28, characterized in that said first glue is a non-liquid glue, such as a strip of double-sided adhesive material.

29. Method to produce logs of wound web material, comprising the phases of:

- 20 > winding a quantity of web material around a first winding core to form a first log in a winding area;
- > upon termination of winding said first log, severing the web material to produce a final edge of the first log and an initial edge to form a second log;
- 25 > applying a first glue to a second winding core, said glue being applied according to at least a longitudinal band essentially parallel to the axis of said core;
- > after severing of said web material, bringing said longitudinal band of glue applied to the second core into contact with said web material;
- 30 > transferring at least part of the first glue from said core to said web material, in proximity or at the level of said final free edge, to close the final free edge of the first log.

30. Method as claimed in claim 29, wherein said initial edge is made to adhere to said second core by means of said first glue.

31. Method as claimed in claim 29, characterized in that a second

glue is applied to said tubular winding cores to fasten the initial free edge of the web material.

32. Method as claimed in one or more of claims 29 to 31, characterized in that said logs are wound with a peripheral winding system comprising
5 at least a first winding element.

33. Method as claimed in one or more of claims 29 to 32, characterized in that said first glue is a liquid or semi-liquid glue.

34. Method as claimed in one or more of claims 29 to 33, characterized by providing a first winding element and a rolling surface defining, with
10 said first winding element, a channel to introduce said cores, with an inlet inside which said cores are fed, and in that said web material is severed upstream of said inlet.

35. Method as claimed in claim 34, characterized in that the final edge and the initial edge of said web material after severing are held on the
15 surface of said winding element through suction, to convey said final edge and said initial edge towards the inlet of said channel.

36. Method as claimed in one or more of claims 29 to 35, characterized in that the web material is severed by pinching said web material between a first winding element around which it is fed and a severing element,
20 moving at a speed differing from the speed of the winding element.